

Application No. 09/623,756
Art Unit 1713
January 12, 2004
Reply to Office Action of September 12, 2003

REMARKS

Claims 1, 2, 4, 6-10 and 12-17 are pending in the present application. No new matter has been added by way of the amendment to the Abstract of the present specification. In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues Under 35 U.S.C. § 102(b) and § 103(a)

Claims 1, 2, 4 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over Schreyer '083 (U.S. Patent No. 3,085,083), Bailey '435 (U.S. Patent No. 3,969,435) or Roura '351 (U.S. Patent No. 4,001,351) (as stated in paragraphs 5-9 of the Office Action).

Also, claims 1, 2, 4 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over Carlson '758 (U.S. Patent No. 3,674,758) as evidenced by Bro '763 (U.S. Patent No. 2,946,763) (as stated in paragraphs 10-11 of the Office Action).

Further, claims 1, 4 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over WO '784 (WO98/09784) (as stated in paragraphs 12-14 of the Office Action).

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Applicants respectfully traverse all of these rejections, and reconsideration and withdrawal of these rejections are respectfully requested.

Schreyer '083; Bailey '435; Roura '351; Carlson '758 and Bro '763

Applicants respectfully submit that the present invention is patentably distinct over the cited references (and combinations thereof).

(A) Unexpected Results and Lack of Disclosure

Applicants previously filed a Declaration Under 37 C.F.R. § 1.132 by co-inventor Yoshiyuki Hiraga. However, the Office Action states that this Declaration is not persuasive for the reasons stated in paragraph 7 of the Office Action.

First, the following statement in the Declaration is questioned: "However, it is practically impossible to repeatedly wash a copolymer to remove any inorganic materials in the polymer, ... " (see page 2, first paragraph of the Rule 132 Declaration). Second, the Office Action questions other parts of the submitted Rule 132 Declaration (as stated in paragraphs 7.b. and 7.c.).

In reply, Applicants note that there is a grammatical error present in the Rule 132 Declaration. The mentioned sentence should

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more appropriately be: "However, it is practically impossible by repeated washing of a copolymer to remove all inorganic materials in the polymer, ... " Thus, the declarant is stating that the repeated washing cannot remove all of the inorganic materials from the polymer.

The reason why the inorganic materials are not removed upon washing is as follows. Example V of the Schreyer '083 reference states: "The copolymer had been washed repeatedly to remove any inorganic materials in the polymer" (see Col. 7, lines 24-25). However, the unstable terminal groups of the copolymer were stabilized by heating at a temperature of 260°C. In this regard, when an unstable terminal group is -COOH, a copolymer is thermally stable at about 350°C. In contrast, when the terminal group is -COOM (M: alkaline metal atom, etc.), the thermal stability of the copolymer is decreased to about 215°C. Thus, one of ordinary skill in the art would understand that this post-heat treatment in Schreyer '083 is done since the repeated washing cannot remove all of the inorganic materials.

According to the above stabilization experiments with heating at 260°C (as done in Example V of Schreyer '083), and experiments carried out by researchers of the assignee (Daikin Industries, Ltd.),

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the copolymer obtained by washing should have potassium in the amount as reported and stated in the Rule 132 Declaration (5 to 10 ppm).

Applicants also submit that the submitted Rule 132 Declaration reflects a proper comparison for unexpected results of the present invention. Of Schreyer '083, Bailey '435, Roura '351, Carlson '758 and Bro '763, the closest prior art compound is that of Schreyer '083, and any comparative showing of the other compounds as disclosed in the other references is not required (see paragraph 9 of the Office Action). Subjecting Example 1 of the present invention to the Example V of Schreyer '083 is completely appropriate so as to establish an appropriate comparison against the "closest prior art". See M.P.E.P. §§ 716.02(b) and 716.02(e); see also *In re Fenn et al.*, 208 USPQ 470 (CCPA 1981). The other cited references are not as close as Schreyer '083. For instance, Carlson '758 describes terminal groups that are converted to methyl ester groups. One of ordinary skill in this art understands that CF₂ groups are more thermally stable than methyl ester groups. Thus, Example V of Schreyer '083 is the closest prior art compound.

In this regard, the Schreyer '083 polymer has unstable terminal groups present, and thus fails to achieve the advantages as exhibited by the present invention.

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Accordingly, with the mentioned points of clarification, Applicants respectfully refer the Examiner to the Rule 132 Declaration as evidence of patentability for the present invention. Reconsideration and withdrawal of these rejections are respectfully requested.

(B) Patentable Distinctions over the Cited References

Applicants respectfully maintain their position that all of the cited prior art documents fail to disclose or suggest the employment of a kneading condition while the copolymer is being formed in its molten state. In response to Applicants' assertion, the Office Action at paragraph 6 (see also paragraph 8) questions the claimed feature of being "melt kneaded".

In response to paragraph 6, Applicants submit that the copolymer of the present invention is not colored after being kneaded, which is an unexpected feature for the present invention. Conventionally processed TFE-HFP copolymers become colored when they are kneaded in a molten state. This is because conventionally processed TFE-HFP copolymers are heated to a temperature that is higher than their melting point, wherein a shear force is applied to the copolymers in the kneading process. Thus, unstable terminal groups form, wherein the unstable terminal groups color the copolymer. The absence of

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coloring in the present invention is due to a small amount of unpaired electrons on the carbon atoms. Thus, there is a distinction from the present invention from the cited references when the claimed copolymer is melt kneaded.

Also, Applicants submit that the other limitation in pending claim 1 of "having substantially no terminal -COOH, -COF, or -CF=CF₂ groups" is a patentable feature over the cited references. A *prima facie* case of obviousness requires that the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Coupled with the other features of the disputed claims, there is no disclosure in the cited references of all of these claimed features (*i.e.*, melt kneading; no terminal groups as claimed).

Accordingly, the present invention is patentably distinct over the cited references, and reconsideration and withdrawal of these rejections are respectfully requested.

WO '784

With regard to the rejections in view of the WO '784 reference, Applicants herein submit a certified English translation of Japanese Patent Application No. 056631/1998, filed March 9, 1998. Thus, WO

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'784 is not prior to the present application, and withdrawal of these rejections is respectfully requested.

Issues of Obviousness-Type Double Patenting

Claims 1, 4 and 6 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of co-pending Application Serial No. 10/061,203 (see paragraphs 15-19 of the Office Action). Applicants respectfully traverse since a Terminal Disclaimer is being concurrently filed with this response, rendering this provisional rejection moot. Withdrawal of this provisional rejection is respectfully requested.

Statement of Common Ownership

U.S. Application Number 10/061,203 and the present application (U.S. Application Number 09/623,756) were, at the time the invention of Application No. 09/623,756 was made, subject to an obligation of assignment to the same entity, Daikin Industries, Ltd.

Paragraphs 20-22 of the Office Action

Applicants respectfully refer the Examiner to the above statement of common ownership.

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Objection to Abstract

The Abstract is objected to since there is more than one paragraph present. Applicants refer the Examiner to the attached amended Abstract, which is now one paragraph. Withdrawal of this objection is requested.

Conclusion

Based on the above remarks, Applicants respectfully submit that the present invention is patentably distinguishable from the cited references. Thus, Applicants respectfully request that a timely Notice of Allowance be issued in the present case.

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Pursuant to 37 C.F.R. § 1.17 and 1.136(a), Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application. The required fee of \$110.00 is attached hereto.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to

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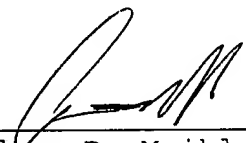
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contact Eugene T. Perez (Reg. No. 48,501) for an Interview at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachments:

- Abstract of the Disclosure
- Certified English translation of Japanese Patent Application No. 056631/1998
- Terminal Disclaimer

(Rev. 02/20/02)

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ABSTRACT

To a fluorine-containing polymer, 0.1 to 10% of a compound comprising an alkali metal or an alkaline earth metal in terms of the number of atoms of the alkali metal or the alkaline earth metal based on the total number of the above terminal groups, 0.1 to 10% of ammonia in terms of the number of ammonia molecules based on the total number of the above terminal groups, or 0.1 to 10% of a compound having an ammonium group in terms of the number of the ammonium groups based on the total number of the above terminal groups is added, and heated at a temperature of at least 200°C in an atmosphere containing moisture. By this process, unstable terminal groups such as terminal carboxylic acid groups and coloration caused by such terminal groups are effectively removed from the fluorine-containing polymer, and furthermore unstable bonds in the backbones can be removed. The obtained fluorine-containing polymer contains 1.0×10^{13} spins/g or less of unpaired electrons on the carbon atoms in terms of a spin density measured with spin resonance at a temperature of 10K.